

WHAT IS CLAIMED IS:

1. An on-board generation system comprising:  
an on-board combustor mounted to a vehicle independently from an engine thereof; and  
an electric generator, mounted to the on-board combustor, for recovering a thermal energy obtained through combustion process as an electric energy by using a thermoelectric converter,  
wherein the electric power generated by the electric generator is supplied even at a time of engine operation stop.
2. An on-board generation system according to claim 1, further comprising an exhaust gas cleanup device arranged in an exhaust gas line extending from the on-board combustor, said exhaust gas cleanup device including a discharge reactor for generating chemically active species by carrying out a discharging process to the exhaust gas and a catalyst reactor having a catalyst activated by the chemically active species generated in the discharge reactor.
3. An on-board generation system according to claim 1, wherein the electric generator comprises one of a thermoelectric converter, a thermionic energy converter, and a combination thereof.

4. An on-board generation system according to claim 3, wherein one of the thermoelectric converter, a thermionic energy converter and the combination thereof constitutes a generation module.
5. An on-board generation system according to claim 4, wherein the combustor has a cylindrical combustor casing and at least one of the generation modules is mounted to an outer peripheral surface of the combustor casing.
6. An on-board generation system according to claim 4, wherein the combustor has a cylindrical combustor casing and at least one of the generation modules is mounted to an inner peripheral surface of the combustor casing.
7. An on-board generation system according to claim 1, wherein the electric generator comprises either one of a voltage step-up unit and a voltage step-down unit for adjusting the generated power to a load during use.
8. An on-board generation system according to claim 1, wherein the electric generator comprises a voltage detecting circuit for automatically detecting and discriminating the generation of voltage, said voltage detecting circuit controlling a power supply by making or breaking an electric line supplying power from the electric generator to a load.

9. An on-board generation system comprising:
- an on-board combustor mounted to a vehicle independently from an engine thereof;
  - a high-temperature system line for circulating a thermal medium for receiving heat caused through a combustion process in the combustor;
  - a low-temperature system line for circulating a medium on a low-temperature side which is subjected to heat exchanging with the thermal medium; and
  - an electric generator, arranged between the high-temperature system line and the low-temperature system line, for recovering the thermal energy of the thermal medium as electric energy,
- wherein the electric power generated by the electric generator is supplied to a power source including either one of an on-board battery and a power supply element for driving a vehicle equipment.
10. An on-board generation system according to claim 9, wherein the thermal medium on the high-temperature system line is either one of a combustion gas in a combustion chamber of the on-board combustor and an exhaust gas discharged from the combustion chamber, and the low-temperature side medium is either one of an air outside a vehicle and an air inside the vehicle.

11. An on-board generation system according to claim 9, wherein the thermal medium on the high-temperature system line is either one of a combustion gas in a combustion chamber of the on-board combustor and an exhaust gas discharged from the combustion chamber, and the low-temperature side medium is a water circulated from either one of a radiator and an on-board heating system.

12. An on-board generation system according to claim 9, wherein the thermal medium on the high-temperature system line is an exhaust gas subsequent to the combustion process in a combustion chamber of the combustor, and the low-temperature side medium is a water circulated from either one of a radiator and an on-board heating system.

13. An on-board generation system according to claim 9, further comprising an exhaust gas cleanup device arranged in an exhaust gas line extending from the on-board combustor, said exhaust gas cleanup device including a discharge reactor for generating chemically active species by carrying out a discharging process to the exhaust gas and a catalyst reactor having a catalyst activated by the chemically active species generated in the discharge reactor.

14. An on-board generation system according to claim 13,

wherein the electric generator supplies power to at least one of the exhaust gas cleanup device and the power source including either one of the on-board battery and the power supply element for driving a vehicle equipment.

15. An on-board generation system according to claim 9, wherein the electric generator comprises one of a thermoelectric converter, a thermionic energy converter, and a combination thereof.

16. An on-board generation system according to claim 15, wherein one of the thermoelectric converter, a thermionic energy converter and the combination thereof constitutes a generation module.

17. An on-board generation system according to claim 16, wherein the combustor has a cylindrical combustor casing and at least one of the generation modules is mounted to an outer peripheral surface of the combustor casing.

18. An on-board generation system according to claim 16, wherein the combustor has a cylindrical combustor casing and at least one of the generation modules is mounted to an inner peripheral surface of the combustor casing.

19. An on-board generation system according to claim 9,

wherein the electric generator comprises either one of a voltage step-up unit and a voltage step-down unit for adjusting the generated power to a load during use.

20. An on-board generation system according to claim 9, wherein the electric generator comprises a voltage detecting circuit for automatically detecting and discriminating the generation of voltage, said voltage detecting circuit controlling a power supply by making or breaking an electric line supplying power from the electric generator to a load.